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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,167

09/13/2005

Heino Rehse

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22497

7590

08/28/2008

LARSON AND LARSON

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EXAMINER

PARK, EDWARD

ART UNIT

PAPER NUMBER

2624

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/509,167	<b>Applicant(s)</b> REHSE, HEINO	
	<b>Examiner</b> EDWARD PARK	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested:  
Method for Inspecting Channel Pipes utilizing Digital Images taken with a Fish-eye Lens.

### ***Claim Objections***

2. In response to applicant's amendment of claim 4, the previous objection is withdrawn.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Peleg et al (WO 98/34195 A1) and in view of Shirato et al (WO/2002/019270). Examiner notes that Shirato et al (US 2003/0117675 A1) will be used as an English translation for the Shirato et al (WO/2002/019270) for purposes of examination hereon.

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Regarding **claim 4**, Peleg discloses a method for inspecting channel pipes, wherein hemispherical or fully spherical digital images recorded at specific locations in the pipe are calculated and perspective images enabling virtual swiveling are produced, the method comprising:

taking a given known pipe geometry of an imaged pipe (Peleg: fig. 11, figure 12a, b, col. 14, lines 31-67),

projecting a recorded image computationally onto the known pipe geometry (Peleg: col. 15, lines 57-67; images are projected on the side of the pipe); and calculating a one-point perspective image data resulting therefrom for the neighboring location (Peleg: figure 11, 12a, b, col. 5, lines 32-55; combining a sequence of two-dimensional images of a scene to obtain a panoramic mosaic of said scene). Peleg does not disclose an intermediate image is calculated and represented from the intermediate image data taken at one location for a random neighboring location of a desired fictive camera position.

Shirato, in the same field of endeavor, teaches an intermediate image is calculated and represented from the intermediate image data taken at one location for a random neighboring location of a desired fictive camera position (see paragraphs [0047]-[0050]; any number of virtual cameras can be added, one original image can be viewed from various angles at the same time to output multiple perspective views).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Peleg reference to utilize an intermediate image produced by a desired fictive camera position as suggested by Shirato, to allow actively view the original image from desired angles simultaneously and output multiple perspective views which reduces an overall

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volume of calculations, allowing for a higher speed of conversion operation (see paragraphs [0050], [0047]).

Regarding **claim 5**, Peleg further discloses calculating at each image point of a 2D-fisheye image  $P'$  ( $X_f$ ,  $Y_f$ ) with known imaging function, the angle of incidence ( $\alpha$ ,  $\theta$ ) of the spherical coordinates, and from the calculation a corresponding image point in 3D space  $P$  ( $X_r$ ,  $Y_r$ ,  $Z_r$ ) on the pipe surface is represented (Peleg: figure 11).

Regarding **claim 6**, Peleg further discloses calculating from the desired fictive camera position and its viewing angle in space (Peleg: figure 11), an image point located in a desired section of an image plane (Peleg: figure 11), and taking from image point coordinates ( $X_b$ ,  $Y_b$ ) of the image plane and assuming a projection center at a distance  $F$  from the image plane  $B$  (Peleg: figure 11), calculating corresponding image point coordinates ( $X_r$ ,  $Y_r$ ,  $Z_r$ ) on the inner surface of the known pipe geometry and corresponding image point coordinates ( $X_f$ ,  $Y_f$ ) of a fisheye image (Peleg: figure 11), so that the color and brightness value of an image point on image plane  $B$  with  $P_n(X_b, Y_b) = P(X_f, Y_f)$  is obtained (Peleg: pg. 26, lines 6-28).

### ***Response to Arguments***

5. Applicant's arguments with respect to **claim 4** have been considered but are moot in view of the new ground(s) of rejection.

Regarding **claims 5-6**, applicant argues that the claims are allowable due to the dependency from claim 4. This argument is not considered persuasive since the rejection of claim 4 stands under a new ground(s) of rejection.

***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PARK whose telephone number is (571)270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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